

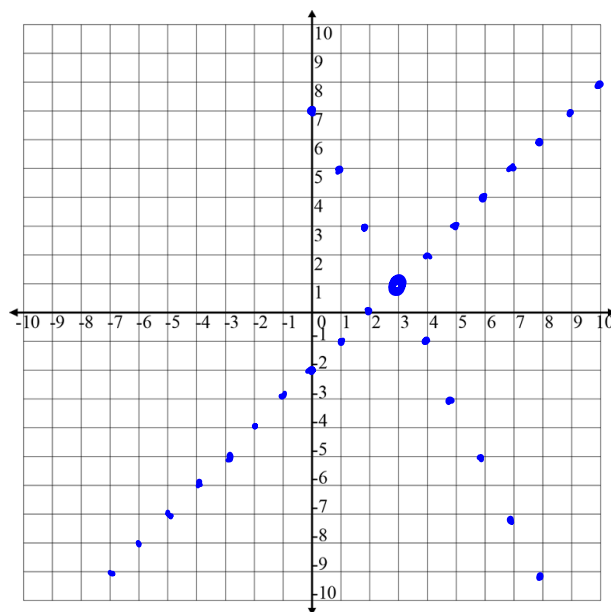
Section 3-1

p118

1-9, 13-24

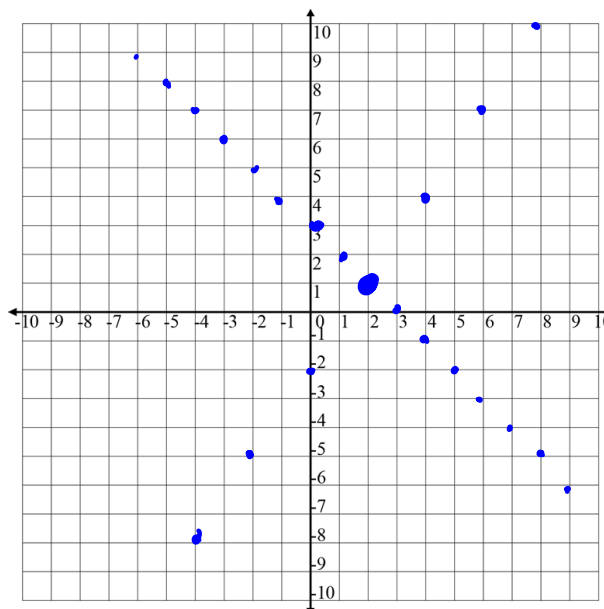
Oct 3-7:31 AM

1.
$$\begin{cases} y = x - 2 \\ y = -2x + 7 \end{cases}$$
 (3,1)



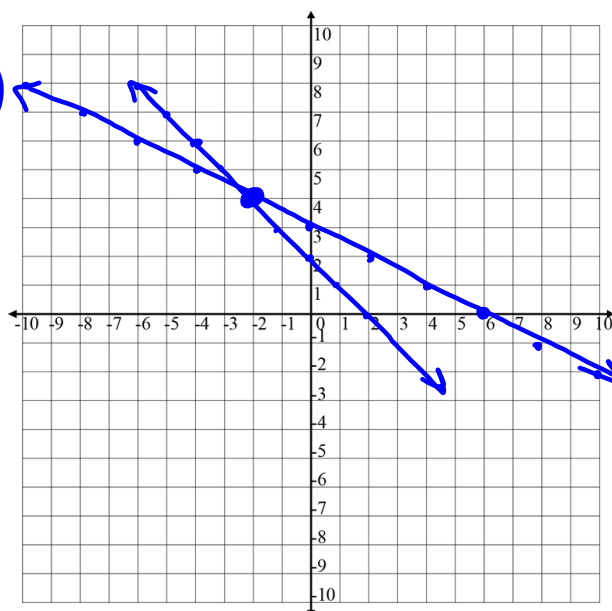
Oct 3-7:35 AM

2. $\begin{cases} y = -x + 3 \\ y = \frac{3}{2}x - 2 \end{cases}$ (2,1)



Oct 3-7:35 AM

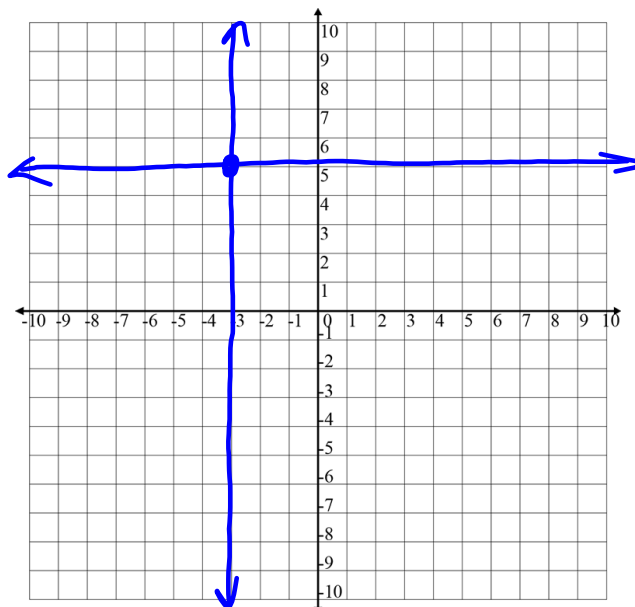
3. $\begin{cases} 2x + 4y = 12 \\ x + y = 2 \end{cases}$ (-2,4)



Oct 3-7:35 AM

4. $\begin{cases} x = -3 \\ y = 5 \end{cases}$

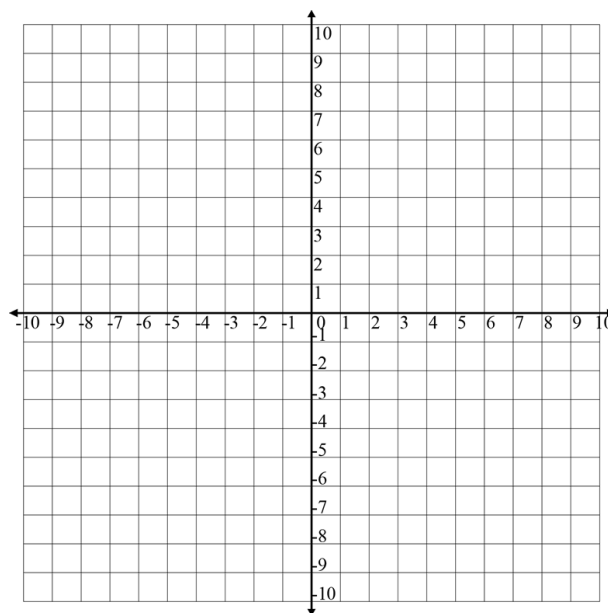
$(-3, 5)$



Oct 3-7:35 AM

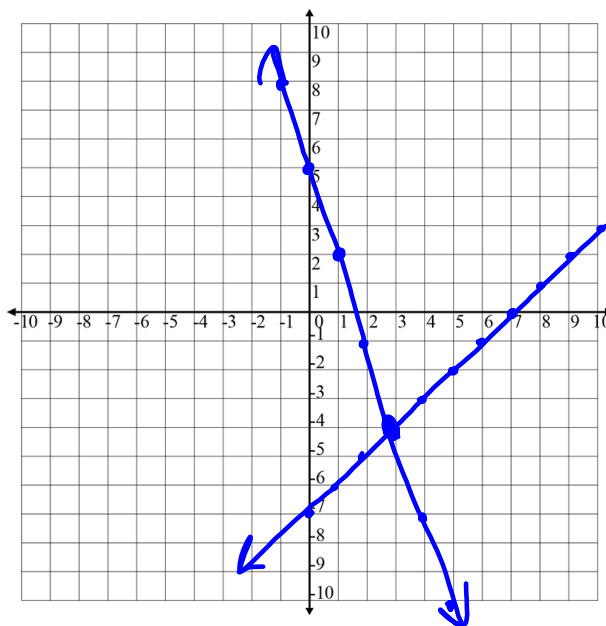
5. $\begin{cases} 2x - 2y = 4 \\ y - x = 6 \end{cases}$

No
Solution



Oct 3-7:36 AM

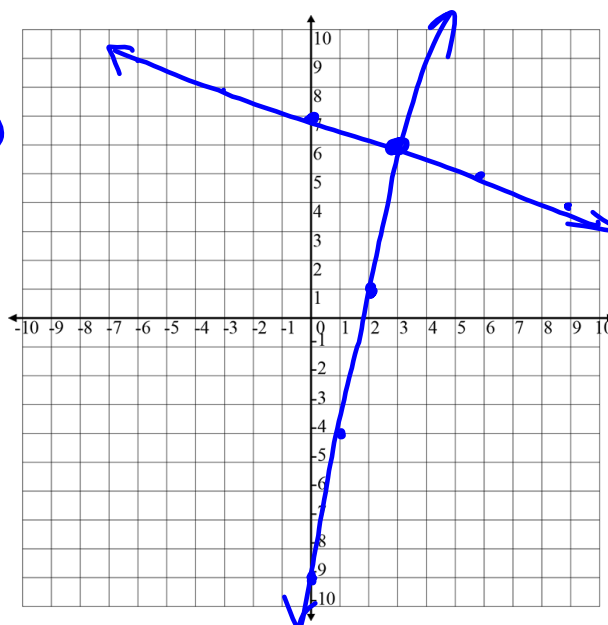
6. $\begin{cases} 3x + y = 5 \\ x - y = 7 \end{cases} \quad (3, -4)$



Oct 3-7:36 AM

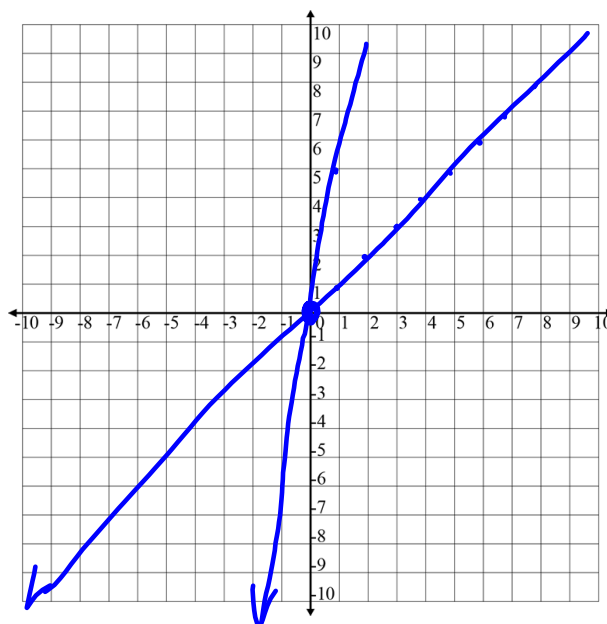
7. $\begin{cases} -5x + y = -9 \\ x + 3y = 21 \end{cases} \quad (3, 6)$

$-\frac{A}{B} = -\frac{1}{3}$



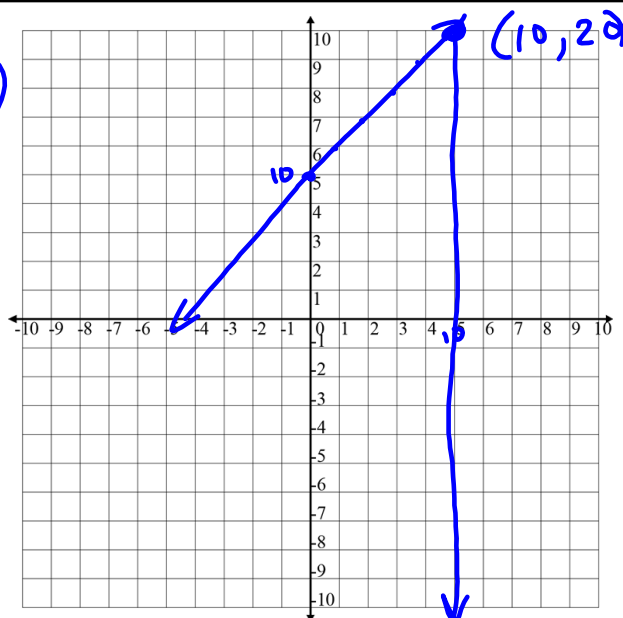
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8. $\begin{cases} y = 1x + 0 \\ y - 5x = 0 \end{cases} \quad (0,0)$
 $y = 5x$



Oct 3-7:36 AM

9. $\begin{cases} x = 10 \\ x = y - 10 \end{cases} \quad (10,20)$
 $y = x + 10$



Oct 3-7:36 AM

Without graphing, classify each system as *independent*, *dependent*, or *inconsistent*.

13.
$$\begin{cases} 7x - y = 6 \\ -7x + y = -6 \end{cases}$$

dependent

14.
$$\begin{cases} -3x + y = 4 \\ x - \frac{1}{3}y = 1 \end{cases}$$

Inconsistent

15.
$$\begin{cases} 4x + 8y = 12 \\ x + 2y = -3 \end{cases}$$

Inconsistent

Oct 3-7:37 AM

16.
$$\begin{cases} y = 2x - 1 \\ y = -2x + 5 \end{cases}$$

Independent

17.
$$\begin{cases} x = 6 \\ x = -2 \end{cases}$$

Inconsistent

18.
$$\begin{cases} 2y = 5x + 6 \\ -10x + 4y = 8 \end{cases}$$

Inconsistent

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$$19. \begin{cases} x - 3y = 2 \\ 4x - 12y = 8 \end{cases}$$

dependent

$$20. \begin{cases} x + 4y = 12 \\ 2x - 8y = 4 \end{cases}$$

Independent

$$21. \begin{cases} 4x + 8y = -6 \\ 6x + 12y = -9 \end{cases}$$

dependent

Oct 3-7:37 AM

$$22. \begin{cases} 4y - 2x = 6 \\ 8y = 4x - 12 \end{cases}$$

Inconsistent

$$23. \begin{cases} y - x = 0 \\ y = -x \end{cases}$$

Independent

$$24. \begin{cases} 2y - x = 4 \\ \frac{1}{2}x - y = 2 \end{cases}$$

Inconsistent

Oct 3-7:37 AM

Section 3-2

p126

2-12 even, 13-17 all, 18-40 even

Oct 3-7:50 AM

$$2. \begin{cases} 3c + 2d = 2 \\ d = 4 \end{cases}$$

 $(-2, 4)$

Oct 3-7:51 AM

4. $\begin{cases} 4p + 2q = 8 \\ q = 2p + 1 \end{cases}$ $\left(\frac{3}{4}, \frac{5}{2}\right)$

$4p + 2(2p + 1) = 8$

$4p + 4p + 2 = 8$

$8p = 6$

$p = \frac{3}{4}$

$q = 2\left(\frac{3}{4}\right) + 1$

$q = \frac{3}{2} + 1$

$q = \frac{5}{2}$

Oct 3-7:52 AM

6. $\begin{cases} x + 6y = 2 \\ 5x + 4y = 36 \end{cases}$ $(8, -1)$

$x = 2 - 6y$

$5(2 - 6y) + 4y = 36$

$10 - 30y + 4y = 36$

$10 - 26y = 36$

$-10 \quad -10$

$-26y = 26$

$y = -1$

$x = 2 - 6y$

$x = 2 - 6(-1)$

$x = 2 + 6$

$x = 8$

Oct 3-7:52 AM

8. $\begin{cases} t = 2r + 3 \\ 5r - 4t = 6 \end{cases}$

$$5r - 4(2r + 3) = 6$$

$$5r - 8r - 12 = 6$$

$$-3r - 12 = 6$$

$$-3r = 18$$

$$r = -6$$

$$t = 2(-6) + 3$$

$$t = -12 + 3$$

$$t = -9$$

$$(-6, -9)$$

Oct 3-7:52 AM

10. $\begin{cases} 2m + 4n = 10 \\ 3m + 5n = 11 \end{cases}$

$$\begin{array}{r} 2m + 4n = 10 \\ -4n \quad -4n \\ \hline 2m = 10 - 4n \\ \frac{2m}{2} = \frac{10 - 4n}{2} \\ m = 5 - 2n \end{array}$$

$$\frac{2m}{2} = \frac{10 - 4n}{2}$$

$$m = 5 - 2n$$

$$3(5 - 2n) + 5n = 11 \quad (-3, 4)$$

$$15 - 6n + 5n = 11$$

$$15 - n = 11$$

$$-n = -4$$

$$n = 4$$

$$m = 5 - 2n$$

$$m = 5 - 2(4)$$

$$m = 5 - 8$$

$$m = -3$$

Oct 3-7:52 AM

$$12. \begin{cases} r + s = -12 \\ 2r - 3s = 6 \end{cases}$$

$$r = -12 - s$$

$$2(-12 - s) - 3s = 6$$

$$-24 - 2s - 3s = 6$$

$$-5s = 30$$

$$s = -6$$

$$(-6, -6)$$

$$r = -12 - (-6)$$

$$r = -12 + 6$$

$$r = -6$$

Oct 3-7:52 AM

13. **Fund-Raising** Suppose you have signed up for a bike-a-thon to raise money for charity. One person is sponsoring you at a rate of \$.50 per mile. Each of the other sponsors plans to donate \$15 no matter how far you bike.

- Write a system of equations to model the donation d for m miles biked.
- For how many miles will all sponsors donate the same amount?

$$a) d = 15$$

$$d = 0.5m$$

$$15 = 0.5m$$

30 miles

$$b) \frac{15}{0.5} = \frac{0.5m}{0.5}$$

$$30 = m$$

Oct 3-7:52 AM

14. **Transportation** A youth group with ~~26~~ members is going skiing. Each of the five chaperones will drive a van or a sedan. The vans can seat seven people, and the sedans can seat five people. How many of each type of vehicle could transport all 31 people to the ski area in one trip?

$V = \text{vans}$
 $S = \text{sedans}$

$$3 + S = 5$$

3 vans
 2 sedans

$$S = 2$$

$$\begin{array}{r} 5(V + S = 5) \\ 7V + 5S = 31 \\ -5V + 5S = 25 \\ \hline 2V = 6 \\ V = 3 \end{array}$$

Oct 3-7:52 AM

15. Suppose you have a part-time job delivering packages. Your employer pays you at a flat rate of \$7 per hour. You discover that a competitor pays employees \$2 per hour plus \$.35 per delivery.
- Write a system of equations to model the pay p for d deliveries. Assume a four-hour shift.
 - How many deliveries would the competitor's employees have to make in four hours to earn the same pay you earn in a four-hour shift?

$$P = 28$$

58 deliveries

$$P = 8 + 0.35d$$

$$28 = 8 + 0.35d$$

$$20 = 0.35d$$

Oct 3-7:52 AM

16. A boat can travel 24 mi in 3 h when traveling with a current. Against the same current, it can travel only 16 mi in 4 h. Find the rate of the current and the rate of the boat in still water.

8 mph

4 mph

$$c = 2 \text{ mph}$$

$$b = 6 \text{ mph}$$

$$b + c = 8$$

$$b - c = 4$$

$$\hline 2b = 12$$

$$b = 6$$

Oct 3-7:53 AM

17. **Geometry** The measure of one acute angle of a right triangle is 30° more than twice the measure of the other acute angle. Find the measures of the angles.

$$a + b = 90$$

$$20^\circ, 70^\circ, 90^\circ$$

$$a = 2b + 30$$

$$2b + 30 + b = 90$$

$$3b + 30 = 90$$

$$3b = 60$$

$$b = 20$$

$$a + 20 = 90$$

$$a = 70$$

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18.
$$\begin{cases} x + y = 12 \\ x - y = 2 \end{cases}$$

$$2x = 14$$

$$x = 7$$

$$x + y = 12$$

$$7 + y = 12$$

$$y = 5$$

$$(7, 5)$$

Oct 3-7:53 AM

20.
$$\begin{cases} 3a + 4b = 9 \\ -3a - 2b = -3 \end{cases}$$

$$(-1, 3)$$

Oct 3-7:54 AM

$$22. \begin{cases} 2w + 5y = -24 \\ 3w - 5y = 14 \end{cases}$$

$$\frac{5w}{5} = \frac{-10}{5}$$

$$w = -2$$

$$2(-2) + 5y = -24$$

$$-4 + 5y = -24$$

$$5y = -20$$

$$y = -4$$

$$(-2, -4)$$

$$3(-2) - 5y = 14$$

$$-6 - 5y = 14$$

$$-5y = 20$$

$$y = -4$$

Oct 3-7:54 AM

$$24. \begin{cases} x + 3y = 11 \\ x + 4y = 14 \end{cases}$$

$$(2, 3)$$

Oct 3-7:54 AM

26. $\begin{cases} x - 14 = -y \\ x - y = 2 \end{cases}$

$$x + y = 14$$

$$2x = 16$$

$$x = 8$$

$$8 + y = 14$$

$$y = 6$$

$$(8, 6)$$

Oct 3-7:54 AM

28. $\begin{cases} 5x - y = 4 \\ 2x + y = -1 \end{cases}$

$$3x = 3$$

$$x = 1$$

$$2x - y = 1$$

$$2(1) - y = 1$$

$$2 - y = 1$$

$$-y = -1$$

$$y = 1$$

$$(1, 1)$$

Oct 3-7:54 AM

30.
$$\begin{cases} 4x - 6y = -26 \\ 2x - 3y = 13 \end{cases}$$

~~$$\begin{aligned} 4x - 6y &= -26 \\ -4x + 6y &= 26 \\ \hline 0 &= 0 \end{aligned}$$~~

Coinciding
Lines
Infinite Solutions

Oct 3-7:54 AM

32.
$$\begin{cases} 2a + 3b = 12 \\ 5a - b = 13 \end{cases}$$

~~$$\begin{aligned} 5a - b &= 13 \\ 15a - 3b &= 39 \\ 2a + 3b &= 12 \\ \hline 17a &= 51 \end{aligned}$$~~

$$\underline{a = 3}$$

$$(3, 2)$$

$$\begin{aligned} 2a + 3b &= 12 \\ 2(3) + 3b &= 12 \\ 6 + 3b &= 12 \\ 3b &= 6 \\ \underline{b = 2} \end{aligned}$$

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34. $\begin{cases} 20x + 5y = 120 \\ 20x + 15y = 160 \end{cases}$

$$\begin{array}{r} 20x + 5y = 120 \\ -10y = -40 \\ \hline y = 4 \end{array}$$

(5, 4)

$$\begin{array}{r} 20x + 5y = 120 \\ 20x + 5(4) = 120 \\ 20x + 20 = 120 \\ 20x = 100 \\ x = 5 \end{array}$$

Oct 3-7:54 AM

36. $\begin{cases} 2x - 3y = -1 \\ 3x + 4y = 8 \end{cases}$

$(\frac{20}{17}, \frac{19}{17})$

$$\begin{array}{r} 8x - 12y = -4 \\ 9x + 12y = 24 \\ \hline 17x = 20 \\ x = \frac{20}{17} \end{array}$$

$$\begin{array}{r} 3(\frac{20}{17}) + 4y = 8 \\ \frac{60}{17} + 4y = \frac{136}{17} \\ \frac{1}{4} \cdot 4y = \frac{76}{17} \cdot \frac{1}{4} \\ y = \frac{19}{17} \end{array}$$

Oct 3-7:54 AM

38. $\begin{cases} r + 3s = 7 \\ 6r - 3s = 21 \end{cases}$ (4, 1)

~~$2r - 3s = 7$~~

$6r - 3s = 21$

$7r = 28$

$r = 4$

$r + 3s = 7$

$4 + 3s = 7$

$3s = 3$

$s = 1$

Oct 3-7:55 AM

40. $\begin{cases} 6x + 4y = 20 \\ 3x + 2y = 10 \\ 6x + 4y = 15 \end{cases}$ Parallel lines
No Solution

~~$0 \neq 5$~~

Oct 3-7:55 AM

Section 3-3

p132

1-8, 18-20, 30-38

Oct 3-11:53 AM

Tell whether $(-3, 3)$ is a solution of each system.

1.
$$\begin{cases} y \geq x + 2 \\ 3y < -6x + 6 \end{cases}$$

yes

2.
$$\begin{cases} y - 2x \leq 1 \\ y < -2x - 2 \end{cases}$$

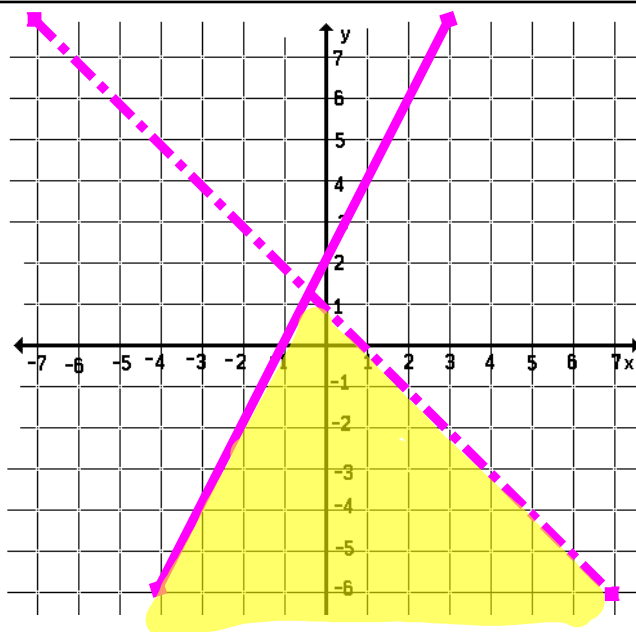
No

3.
$$\begin{cases} -2y + x \leq 4 \\ 3y < -9x + 3 \end{cases}$$

Yes

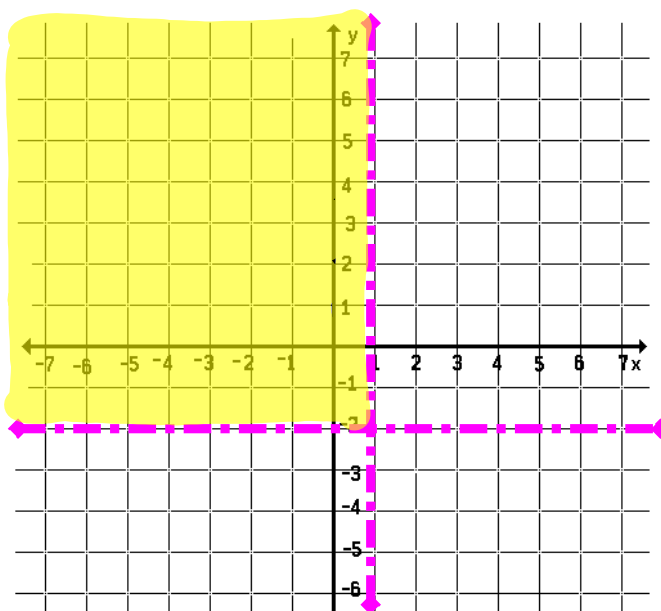
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4.
$$\begin{cases} y \leq 2x + 2 \\ y < -x + 1 \end{cases}$$



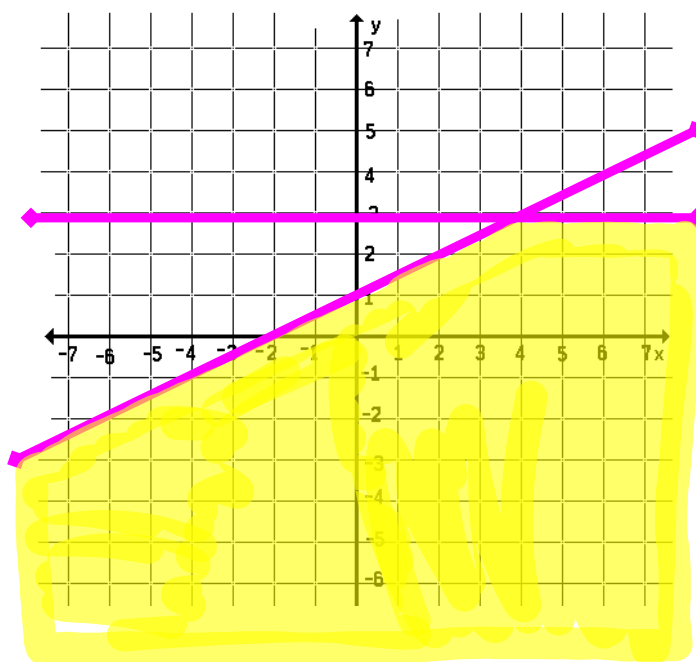
Oct 6-7:45 AM

5.
$$\begin{cases} y > -2 \\ x < 1 \end{cases}$$



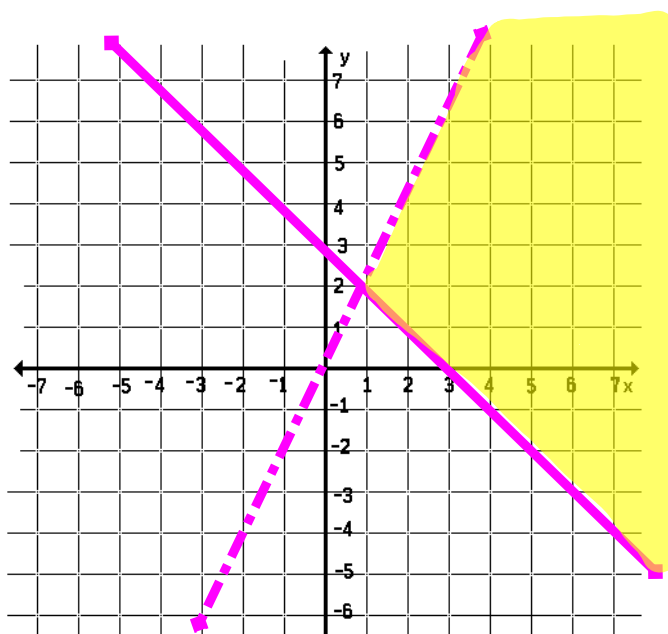
Oct 6-7:45 AM

6.
$$\begin{cases} y \leq 3 \\ y \leq \frac{1}{2}x + 1 \end{cases}$$



Oct 6-7:45 AM

7.
$$\begin{cases} y < 2x \\ y \geq -x + 3 \end{cases}$$

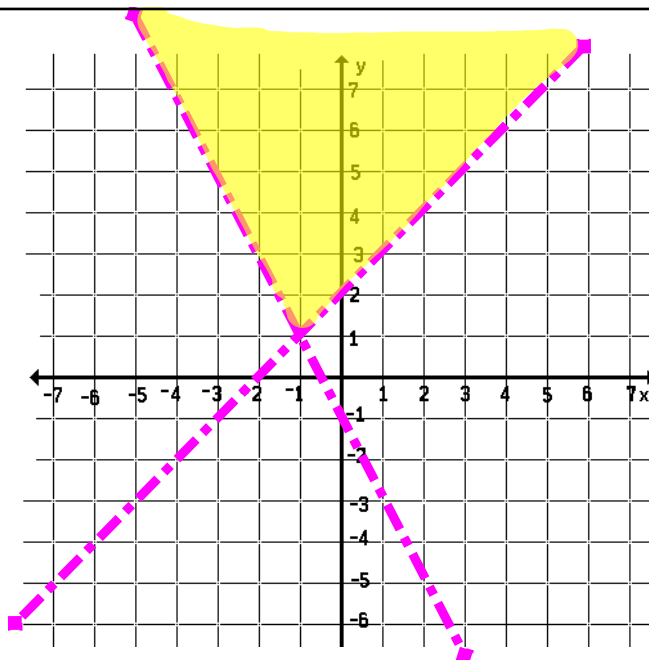


Oct 6-7:45 AM

$$y > -2x - 1$$

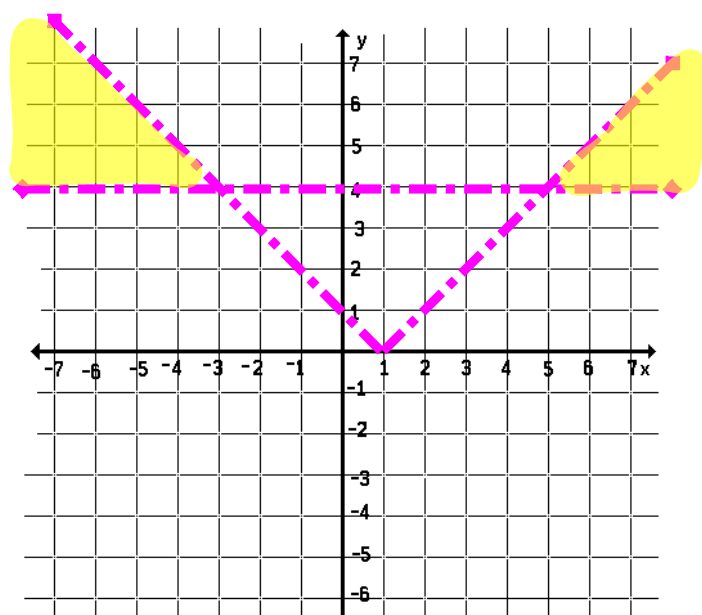
8. $\begin{cases} -2y < 4x + 2 \\ y > x + 2 \end{cases}$

$$-2y < 4x + 2$$



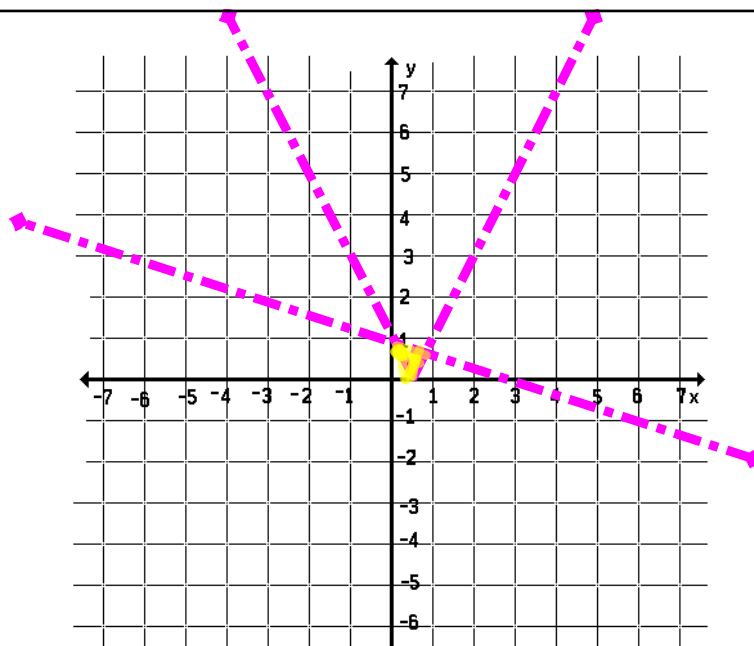
Oct 6-7:46 AM

18. $\begin{cases} y > 4 \\ y < |x - 1| \end{cases}$



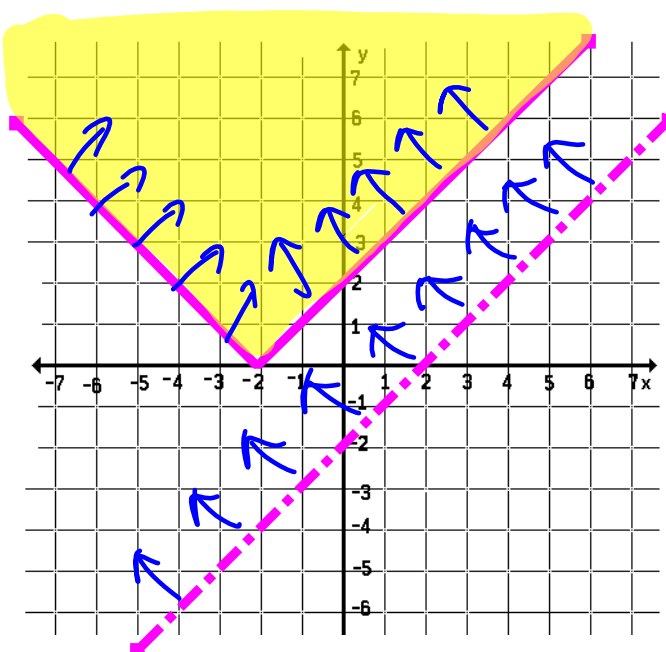
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19.
$$\begin{cases} y < -\frac{1}{3}x + 1 \\ y > |2x - 1| \end{cases}$$



Oct 6-7:46 AM

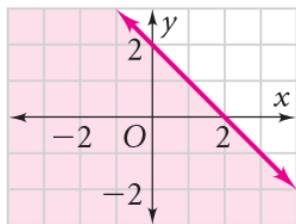
20.
$$\begin{cases} y > x - 2 \\ y \geq |x + 2| \end{cases}$$



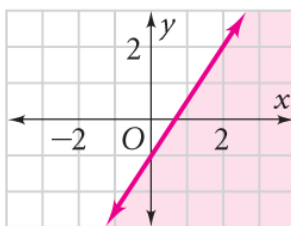
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In Exercises 30–39, identify the inequalities A, B, and C for which the given ordered pair is a solution.

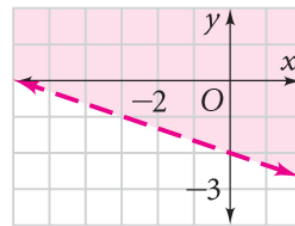
A. $x + y \leq 2$



B. $y \leq \frac{3}{2}x - 1$



C. $y > -\frac{1}{3}x - 2$



30. (0, 0) **A, C** 31. (-2, -5) **AB** 32. (-2, 0) **AC** 33. (0, -2) **AB** 34. (-15, 15) **AC**
 35. (3, 2) **BC** 36. (2, 0) **ABC** 37. (-6, 0) **A** 38. (4, -1) **BC** 39. (-8, -11) **A**

Oct 6-7:46 AM

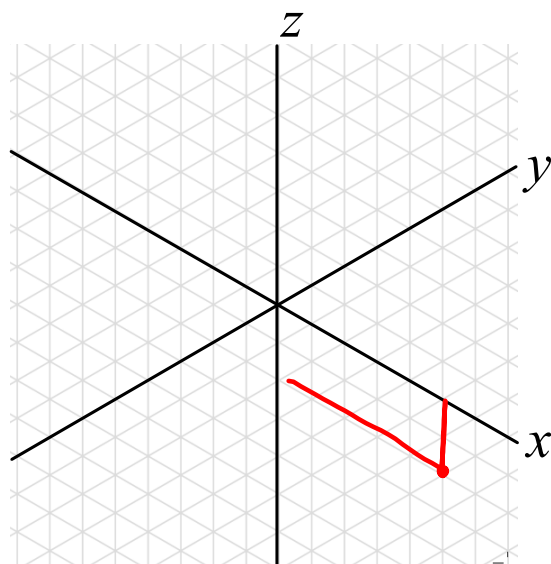
Section 3-5

p145

5-24

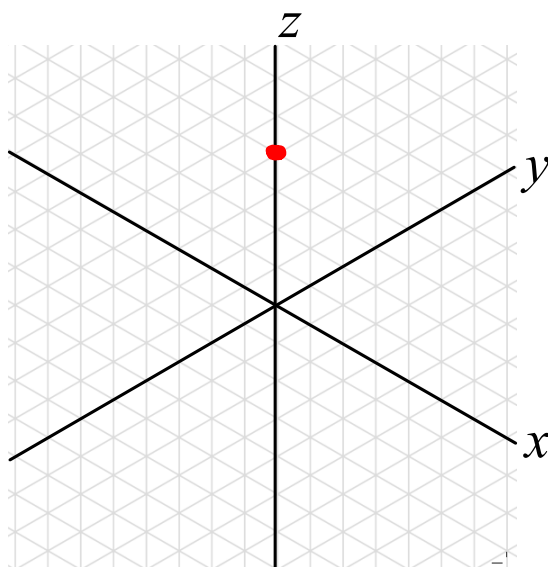
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5. $(5, 0, -2)$



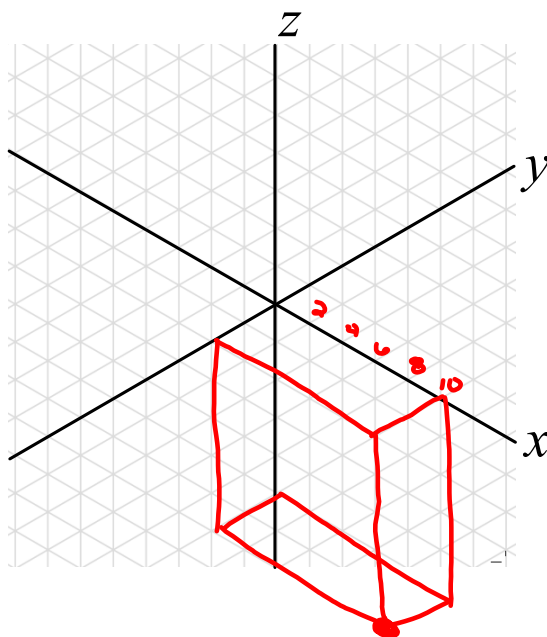
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6. $(0, 0, 4)$



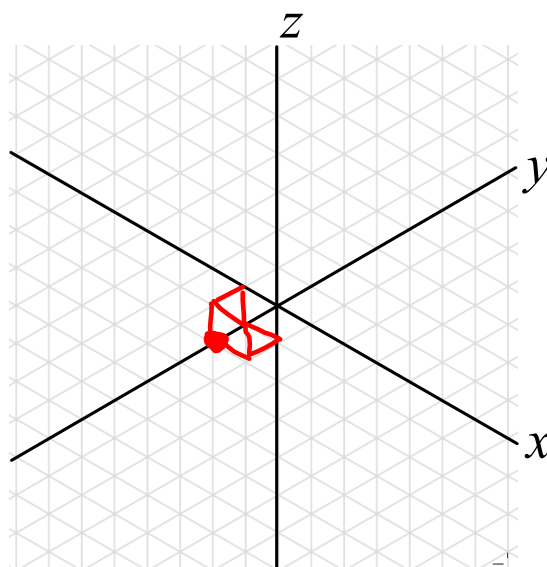
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7. $(10, -2, -5)$

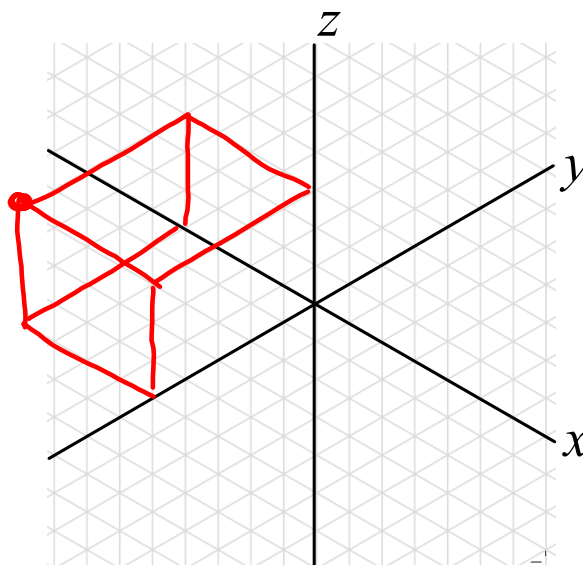


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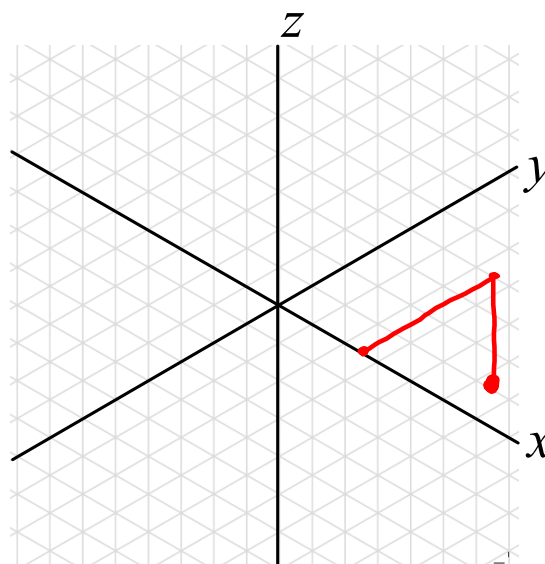
8. $(-1, -1, -1)$



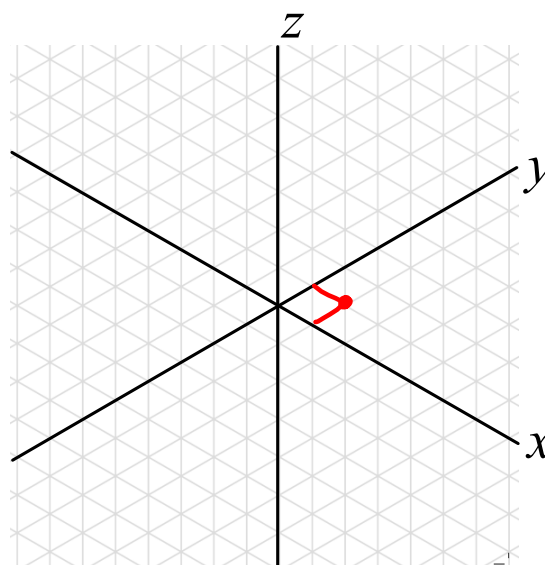
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$(-4, -5, 3)$ 

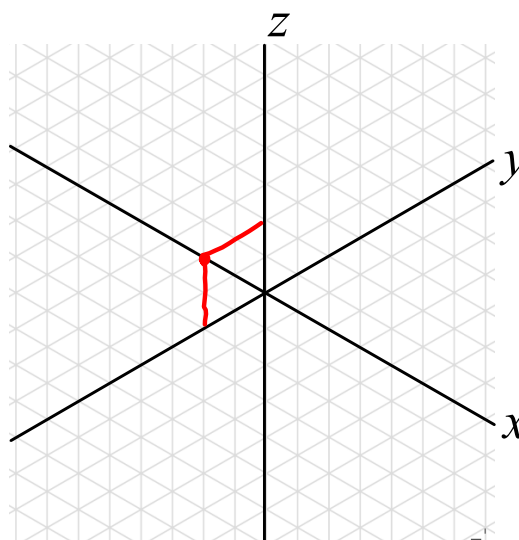
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10. $(25, 40, -30)$ 

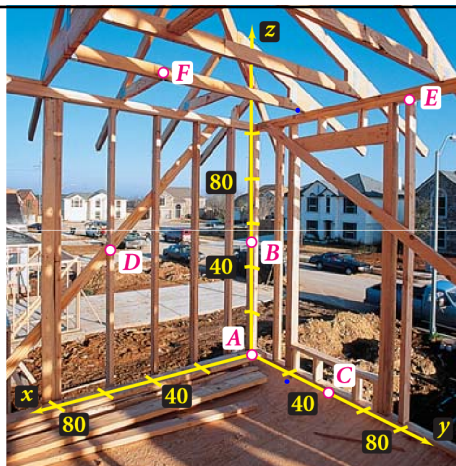
Oct 7-8:10 AM

11. $(1, 1, 0)$ 

Oct 7-8:10 AM

12. $(0, -2, 2)$ 

Oct 7-8:10 AM



Find the coordinates of each point in the diagram.

13. A $(0,0,0)$

14. B $(0,0,50)$

15. C $(0,40,0)$

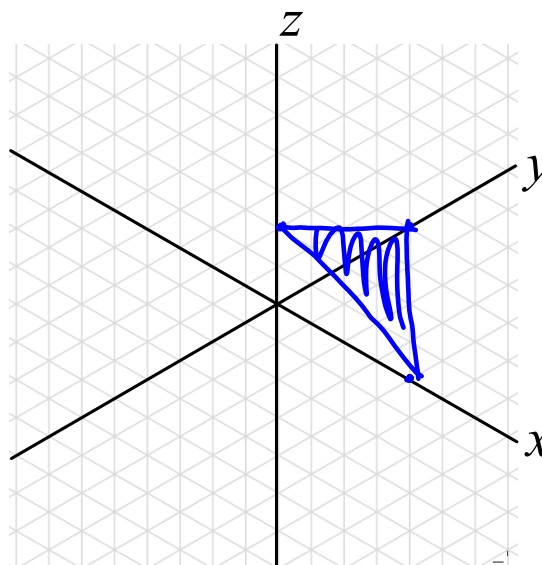
16. D $(60,0,50)$

17. E $(0,80,100)$

18. F $(60,20,100)$

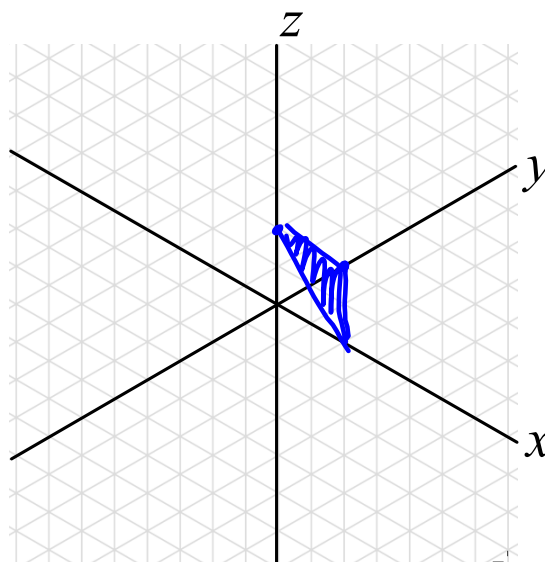
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19. $x + y + 2z = 4$



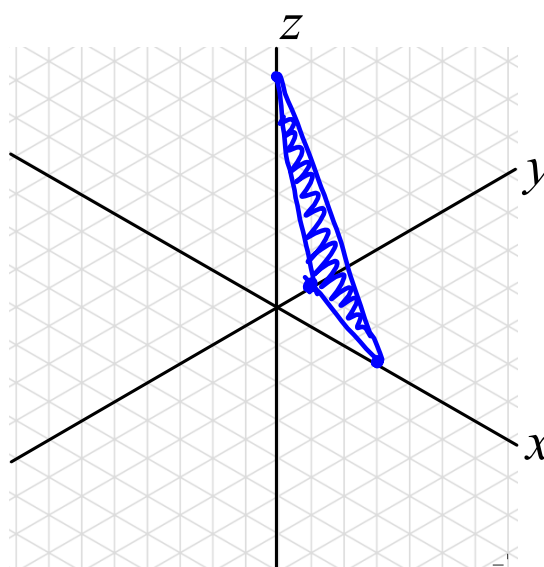
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20. $x + y + z = 2$



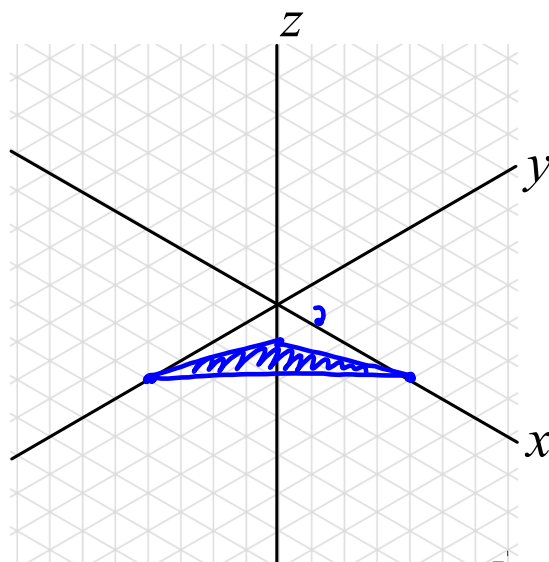
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21. $2x + 6y + z = 6$



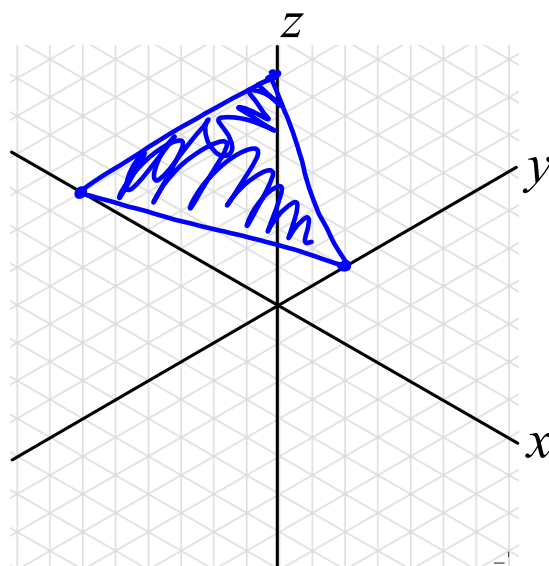
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22. $x - y - 4z = 8$



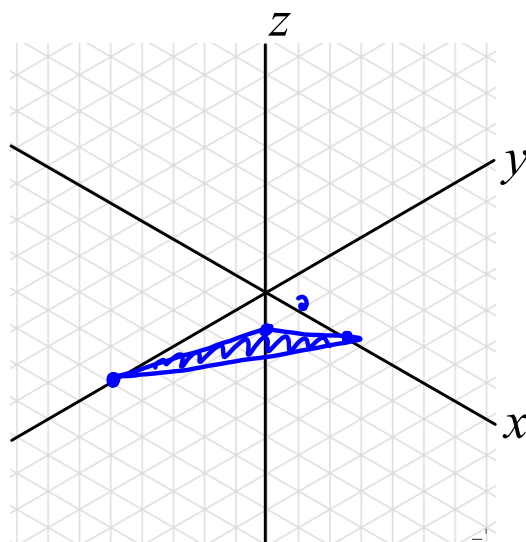
Oct 7-8:11 AM

23. $-x + 3y + z = 6$



Oct 7-8:11 AM

24. $2x - y - 5z = 10$



Oct 7-8:11 AM

Oct 10-10:00 AM